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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,549	10/28/2003	Rycharde Jeffery Hawkes	30018432-2	5467

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EXAMINER	
STEVENS, THOMAS H	
ART UNIT	**PAPER NUMBER**
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/695,549	HAWKES ET AL.	
	Examiner	Art Unit	
	Thomas H. Stevens	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-11,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1,3-6,8-11,13 and 14 were examined.

Section I: Final Rejection

Claim Interpretation

2. Office personnel are to give claims their **"broadest reasonable interpretation"** in light of the supporting disclosure. *In re Morris,* 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater,* 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551(CCPA 1969). See *also *In re Zletz,* 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322(Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow") .... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed .... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process. The Office interprets the different complexities limitation as high and low fidelity as so denoted from applicants' disclosure (paragraphs 0006, 0023 respectively):

*Such a **high-fidelity simulation will include the use of computationally expensive techniques for behavior selection, sensing and interaction with the environment and other animats, e.g. use of a form of 3D rigid-body physics***

simulation to model the environment and the various parts of the body of the animat; *use of ray-tracing computer graphics to synthesize visual sensory input; the simulation of the transmission, absorption, and reflection of sound waves, etc.*

If only a relatively small amount of computational power is available, ***then a relatively low-fidelity simulation (Lo-Fi Sim) would be utilized to ensure that the simulation progresses at a reasonable rate. Such a Lo-Fi Sim will use computationally less expensive techniques, such as only using a two dimensional (2D) model of the environment, and employing a simplified model of the body of the animat e.g. treating it as a point mass with redetermined locomotion characteristics (speed, rate of turn etc).***

Furthermore, applicants have clarified (applicants' response, dated 11/28/2007, pg. 6, 2nd paragraph), the first and second portions as high-level and low-level brains, respectively.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1,3-6,8-11,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al., titled, "From SAB90 to SAB94: Four Years of Animat Research", hereafter Meyer in view of Funge, titled, "Cognitive Modeling for Games and Animation", hereafter Funge.

Per Claims 1-6,9,10,11 and 14 Meyer teaches

- Simulation of a creature ("simulated animal", pg.1, 1st paragraph, line 1)
- utilizing a model of the creature (pg. 1, Introduction, paragraphs 1-2, paragraph 2, "behavior of an animat...")
- a behavior selection mechanism arranged to select the behavior of said creature (pg. 1, Introduction, right column, figure 1, "interactions between an animat")
- a first portion (see claim interpretation with pg. 6, "Prospects" section, lines 24-26, "highest cognitive abilities" cognitive: metal process of perception)
- second portion (see claim interpretation with pg. 3, right column, lines 21-25, "low-level candidates" and pg. 3, left column, 3rd paragraph, lines 7-12 "modeling, planning and execution")

but Mayer fails to teach two different complexities to which Funge teaches

- two different complexities of simulation (see claim interpretation with pg.47, right column, 3rd paragraph, lines 5-6 "higher fidelity"; also with low fidelity i.e., using a simplified model of the body of the animat such as low-level behavior, pg. 42, figure 1 paragraph lines 5-9; pg.44, right column, 2nd paragraph, lines 1-4 "primitive actions")

- first and second versions (disclosure is not quite clear on this limitation, however, pg. 44, figure 2, different levels or variations of complex actions

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify Meyer in view of Funge since Funge teaches a modeling hierarchy to yield characters with unprecedented levels of interactivity and physical realism (Funge, pg. 48, "The Future of Cognitive Modeling" paragraph, last sentence).

Per Claims 3, 4 Meyer teaches

- the environment surrounding the creature (figure 1)

- behavior selection mechanism ("behavior control architecture" pg. 1, Introduction, lines 1-5)

Per Claim 3 Funge, teaches

- one or more internal state variables (suggestion of the use of variables relating to the arithmetic process of the animation process, pg. 46, right column, 3rd paragraph, lines 4-8)

- one or more sensory inputs (front page, "Give Virtual Characters an Intellectual and Sensory Boot")

Per Claim 4, Meyer teaches

- a set of mutually exclusive behavioral states (behavior states are separated when activated, pg.3, right column, last paragraph, lines 12-17)

Per Claims 6 and 13 Meyer teaches

- a neural network (pg. 4, right column, lines 1-2)

Per Claim 8, Funge teaches

- a three dimensional physical (pg. 47, figure 4) simulation of an animat,
- and the second version utilizes a parameterized model (suggestion of the use of variables relating to the arithmetic process of the animation process, pg. 46, right column, 3rd paragraph, lines 4-8)

Per claim 9, Funge teaches

- a first mode (the disclosure is vague as to what a mode is; however, the prior art teaches different levels or modes to simulate the behavior of said creature, pg. 42, figure, 1 i.e., motor perception; and the pyramid structure of cognitive behavior) arranged to simulate the activities of all of said creatures

- a second mode (the disclosure is vague as to what a mode is; however, the prior art teaches different levels or modes to simulate the behavior of said creature, pg. 42, figure, 1 i.e., motor perception; and the pyramid structure of cognitive behavior) arranged to simulate an activity of at least one of said creatures

Section II: Response to Arguments

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6. Applicants are thanked for addressing this issue. Rejection is withdrawn.

102(b)

7. Applicants' arguments see pages 6-14, filed 11/28/2007, with respect to the rejection(s) of claim(s) 1-14 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Meyer and Funge.

Note: After Final

8. If and only if applicants wish to request an interview, the request must have, minimum, a **claim limitation with a substantive response** on a PTO-413, otherwise no interview will be granted.

Conclusion

9. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure:

- Blumberg-B.M., "Multi-Level Direction of Autonomous Creatures for Real-Time Virtual Environments" ACM 1995 pg.47-54; teaches new methods to implement several autonomous animated creatures.

- Guillot et al.,"The Animat Contribution to Cognitive System Research" AnimatLab, 2001. pg. 157-165; teaches animat contributions to adaptive behavior in animals or robots.

- Sims-K., "Evolving Virtual Creatures" International Confer and Interactive Techniques 1994 pg.15-22; teaches creating virtual creatures that move and behave in simulated 3D physical worlds.

- Atkeson et al., "Using Humanoid Robots to Study Human Behavior" IEEE 2000 pg.46-55; teaches a method primative movements based on dynamic systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715.

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. David Vincent 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

David Vincent 11/7/08
Supervisory Patent Examiner
Tech Center 2100